A COLLAPSIBLE CANOPY

FIELD OF THE INVENTION

[0001] The present invention relates to a canopy for travelling or camping activities, and more particularly to a collapsible canopy.

BACKGROUND OF THE INVENTION

[0002] People often need to carry a canopy with them to shelter from strong sunlight, rain and wind when they go out on tours for pleasure. Existing canopies are composed of a covering supported by a structure of poles, such as Mongolian yurts, which are inconvenient to pitch, strike, and transport.

[0003] It is obvious that said existing canopies have drawbacks that leave room for improvement.

BRIEF SUMMARY OF THE INVENTION

[0004] It is an object of this invention to overcome drawbacks of existing canopies and provide a collapsible canopy with novel structure, which can be pitched simply by extending the framework and put a covering on the framework, and stricken simply by removing the covering and folding the framework, which is convenient to carry, transport and store.

[0005] The object of the present invention can be achieved by the following technical solutions. The present invention provides a collapsible canopy which includes a collapsible framework and a covering put on the collapsible framework. The framework includes a cross hinge, a plurality of center members, slide brackets, side members, cantilever members, upside hinges, downside hinges, scissors frames, support members, springs, and

holes.

[0006] Sides of framework are provided with foldable crossbeams, each of which comprises more then one number of scissors frames. Each scissors frame is composed of two cross pieces connected to each other in the midway by means of hinge connection. Two ends of each scissors frame are respectively connected to two corresponding ends of the other scissors frame at the same side by means of hinge connection. The other two ends of each scissors frame are respectively connected to the two corresponding ends of the scissors frame on the abutting side by means of hinge connection, thus forming two flexion points. The supporting members pass through the downside hinges. The top ends of the supporting members are provided with upside hinges in a fixed fashion. Center members, side members, and cantilever members are connected to each other by slide brackets sets composed of slide brackets. The other side of each center member is connected to cross hinge by means of hinge connection. The other side of each side member is connected to upside hinge by means of hinge connection. The other side of each cantilever member is connected to downside hinge by means of hinge connection.

[0007] The object of the present invention can be further achieved by the following technical solutions.

[0008] Said collapsible canopy, wherein the open end of said slide bracket and said cantilever member are connected to a center member passing through the bottom space of another slide bracket by means of hinge connection, and the side member passes through the bottom space of said slide bracket and connects to the open end of the other slide bracket by means of hinge connection.

[0009] Said collapsible canopy, wherein each of the four right-angled branches of said cross hinge is provided with a hinge hole.

[0010] Said collapsible canopy, wherein said support members are made of hollow tubes, and when the framework is extended, the protruding end of a spring provided in the hollow support member where a hinge is provided passes through the wall of the hollow support member and is received by the hole on the downside hinge.

[0011] Said collapsible canopy, wherein the lower end of each support member is provided with a telescopic tube to raise the height of the canopy.

[0012] Said collapsible canopy, wherein the cantilever support can be of various sizes according to different shapes of the roof structure of the collapsible canopy.

[0013] Said collapsible canopy, wherein each side of the four sides of the framework comprises two scissors frames.

[0014] Said collapsible canopy, wherein said slide brackets are of a U-shaped structure.

[0015] Detailed description of present invention with reference to exemplary embodiments and drawings is given hereunder.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 illustrates a perspective view of a pitched collapsible canopy structure according to the present invention.

[0017] FIG. 2 illustrates a perspective view of the framework structure in a pitched configuration.

[0018] FIG. 3 illustrates the framework in a folded configuration.

[0019] FIG. 4 illustrates the structure of a slide bracket.

[0020] FIG. 5 illustrates the structure of a cross hinge provided

on top of the framework.

[0021] FIG. 6 illustrates the structure of a collapsible canopy with a cone-shaped roof.

[0022] FIG. 7 illustrates the structure of a collapsible canopy with a dome-shaped roof.

[0023] FIG. 8 illustrates the locking mechanism of an upside hinge when the framework is in a pitched configuration.

[0024] FIG. 9 illustrates the locking mechanism of a downside hinge when the framework is in a pitched configuration.

DETAILED DESCRIPTION OF THE INVENTION

[0025] The present invention, a collapsible canopy, includes a covering 1, a framework 2, which further includes a cross hinge 3, center members 4, U-shaped slide brackets 5, U-shaped slide brackets 6, side members 7, cantilever members 8, upside hinges 9, downside hinges 10, scissors frames 11, supporting members 12, springs 13, and holes 14.

[0026] Referring to FIG. 1 and FIG. 2, which illustrate the first embodiment of the present invention. Covering 1 is put on framework 2. Each of the four sides of framework 2 comprises two scissors frames 11 to form a foldable cross beam. Each scissors frame 11 comprises two cross pieces 8 hinge connected to each other in the midway. Two ends of each scissors frame 11 are respectively connected to two corresponding ends of the other scissors frame 11 at the same side by means of hinge connection. The other two ends of each scissors frame 11 are respectively connected to the two corresponding ends of the scissors frame 11 on the abutting side by means of hinge connection, thus forming two flexion points. Each of the four supporting members passes through the downside

hinges 10 thereof to form a sliding fit construction. The top end of each supporting member is provided with an upside hinge 9 in a fixed fashion. Center members 4, side members 7, and cantilever members 8 are connected to each other by slide brackets sets composed of U-shaped slide brackets 5 and 6. The other side of each center member 4 is connected to cross hinge 3 by means of hinge connection. The other side of each side member 7 is connected to upside hinge 9 by means of hinge connection. The other side of each cantilever member 8 is connected to downside hinge 10 by means of hinge connection.

[0027] Referring to FIG. 4, the open end of the U-shaped slide bracket 6 and the cantilever member 8 are connected to the center member 4 that passes through the bottom space of another U-shaped slide bracket 5 by means of hinge connection side member 7 passing through the bottom space of slide bracket 6 connected to the open end of another slide bracket 5 by means of hinge connection..

[0028] Referring to FIG. 5, each of the four branches of the cross hinge 3 right-angled to each other is provided with a hinge hole 31.

[0029] Referring to FIG 8 and FIG 9, which illustrate the second alternate embodiment of the present invention. When the framework 2 is extended, the protruding end of spring 13 inside the hollow support member 12 where a downside hinge is provided passes through the wall of the hollow support member 12 and is received by the hole 14 on the downside hinge 10. The construction of other parts of this embodiment of the canopy structure is same to that of the first embodiment of the present invention.

[0030] FIG. 6 and FIG. 7 illustrate the third alternate embodiment

of the present invention. FIG. 6 reflects a cone-shaped roof structure, while FIG. 7 reflects a dome-shaped roof structure. The difference between the cone-shaped roof structure and the dome-shaped roof structure lies in that the length of cantilever member 8 of the dome-shaped roof structure is shorter than that of the cone-shaped roof structure. Different roof structures are provided with corresponding coverings 1 of different shapes. The construction of other parts of the canopy structure is same to that of the second embodiment of the present invention.

[0031] A fourth alternate embodiment of the present invention includes a canopy structure of which the height can be raised or lowered when needed by connecting the lower end of each hollow support member 12 with a telescopic tube. The construction of other parts of the canopy structure is same to that of the second or the third embodiment of the present invention.

[0032] Referring to FIG. 3, the collapsible canopy structure can be stricken simply by removing the covering 1 and folding the framework 2.

[0033] It is obvious that the present invention has advantages over the prior art. From the technical method described above one can know that a collapsible canopy comprises a covering and a collapsible framework on which the covering is put, each of the four sides of the collapsible framework comprises two scissors frames forming a collapsible cross beam, each scissors frame comprises two pieces of cross pieces hinged to each other in the midway, The other two ends of each scissors frame are respectively connected to the two corresponding ends of the scissors frame on the abutting side by means of hinge connection, thus forming

two flexion points, each of the four supporting members passes through the downside hinge thereof to form a sliding fit construction, and center members, side members, and cantilever members are connected to each other by slide brackets sets. All members comprising the framework of the canopy are connected to each other either by slide fits or hinge connections, thus making it easy to pitch or strike the canopy simply by extending the framework and put up the covering or by removing the covering and folding the framework, and also making it convenient to carry and transport.

[0034] From the above it can be known that the collapsible canopy of the present invention has significant improvements both in the construction and the operation.

[0035] Accordingly, the above described are only the preferred embodiments of the present invention which does not in any way limit the present invention. It should be appreciated that any modifications or changes may be made according to the preferred embodiments of the present invention without departing from the scope of technical solutions described herein.